

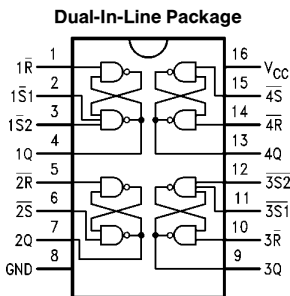
June 1989

54279/DM74279 Quad Set-Reset Latch

General Description

This device contains four independent set-reset type flip-flops with one Q output each.

Connection Diagram



TL/F/9785-1

Order Number 54279DMQB, 54279FMQB or DM74279N
NS Package Number J16A, N16E or W16A

Pin Names	Description
R _n	Reset Inputs (Active Low)
S _n	Set Inputs (Active Low)
Q	Outputs

Truth Table

Inputs			Output Q
$\bar{S}1$	$\bar{S}2$	\bar{R}	
L	L	L	h
L	X	H	H
X	L	H	H
H	H	L	L
H	H	H	No Change

H = HIGH Voltage Level

L = LOW Voltage Level

X = Immaterial

h = The output is HIGH as long as $\bar{S}1$ or $\bar{S}2$ is LOW. If all inputs go HIGH simultaneously, the output state is indeterminate; otherwise, it follows the Truth Table.

54279/DM74279 Quad Set-Reset Latch

Absolute Maximum Ratings (Note)

If Military/Aerospace specified devices are required, please contact the National Semiconductor Sales Office/Distributors for availability and specifications.

Supply Voltage	7V
Input Voltage	5.5V
Operating Free Air Temperature Range	
54	−55°C to +125°C
DM74	0°C to +70°C
Storage Temperature Range	−65°C to +150°C

Note: The “Absolute Maximum Ratings” are those values beyond which the safety of the device cannot be guaranteed. The device should not be operated at these limits. The parametric values defined in the “Electrical Characteristics” table are not guaranteed at the absolute maximum ratings. The “Recommended Operating Conditions” table will define the conditions for actual device operation.

Recommended Operating Conditions

Symbol	Parameter	54279			DM74279			Units
		Min	Nom	Max	Min	Nom	Max	
V _{CC}	Supply Voltage	4.5	5	5.5	4.75	5	5.25	V
V _{IH}	High Level Input Voltage	2			2			V
V _{IL}	Low Level Input Voltage			0.8			0.8	V
I _{OH}	High Level Output Current			−0.8			−0.8	mA
I _{OL}	Low Level Output Current			16			16	mA
T _A	Free Air Operating Temperature	−55		125	0		70	°C

Electrical Characteristics

over Recommended Operating Free Air Temperature Range (Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ (Note 1)	Max	Units
V _I	Input Clamp Voltage	V _{CC} = Min, I _I = −12 mA			−1.5	V
V _{OH}	High Level Output Voltage	V _{CC} = Min, I _{OH} = Max, V _{IL} = Max	2.4	3.4		V
V _{OL}	Low Level Output Voltage	V _{CC} = Min, I _{OL} = Max, V _{IH} = Min		0.2	0.4	V
I _I	Input Current @ Max Input Voltage	V _{CC} = Max, V _I = 5.5V			1	mA
I _{IH}	High Level Input Current	V _{CC} = Max, V _I = 2.4V			40	μA
I _{IL}	Low Level Input Current	V _{CC} = Max, V _I = 0.4V			−1.6	mA
I _{OS}	Short Circuit Output Current	V _{CC} = Max (Note 2)	54 DM74	−20 −18	−55 −57	mA
I _{CC}	Supply Current	V _{CC} = Max, \bar{R} = 0V			30	mA

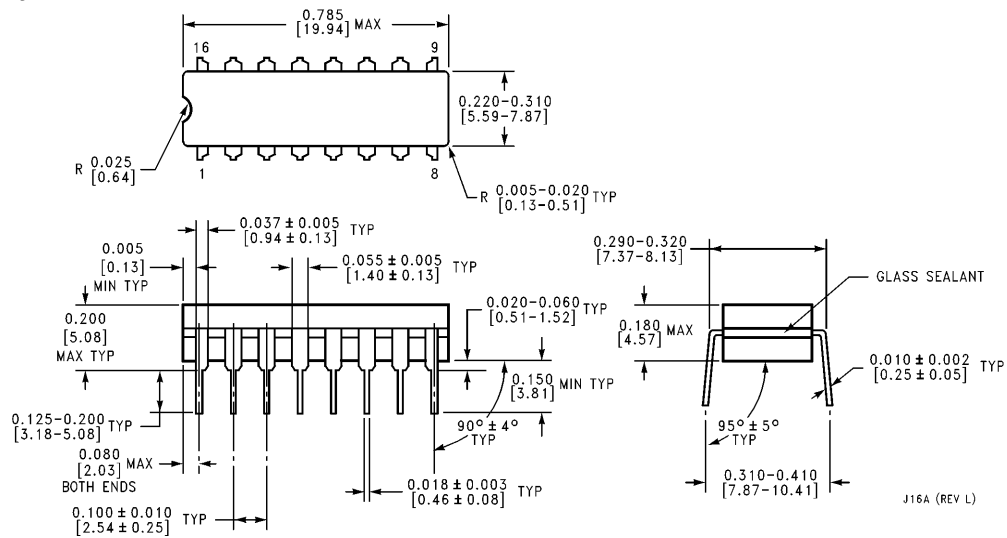
Switching Characteristics

Symbol	Parameter	54/DM74		Units
		Min	Max	
t _{PLH} t _{PHL}	Propagation Delay S to Q		22 15	ns
t _{PHL}	Propagation Delay R to Q		27	ns

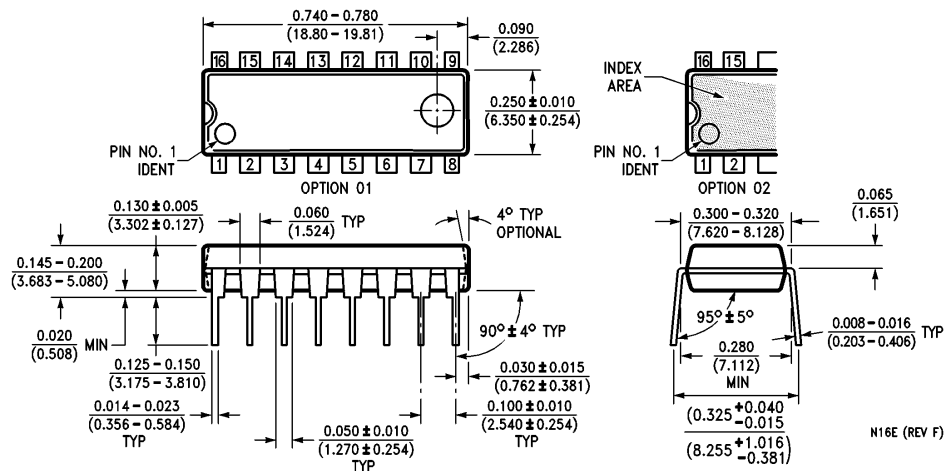
Note 1: All typicals are at V_{CC} = 5V, T_A = 25°C.

Note 2: Not more than one output should be shorted at a time.

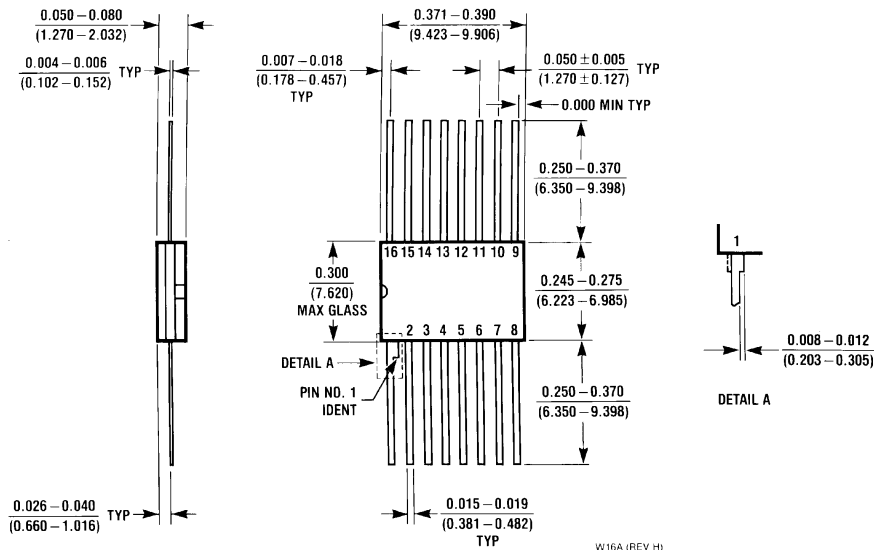
Physical Dimensions inches (millimeters)



16-Lead Ceramic Dual-In-Line Package (J)
Order Number 54279DMQB
NS Package Number J16A



16-Lead Molded Dual-In-Line Package (N)
Order Number DM74279N
NS Package Number N16E

Physical Dimensions inches (millimeters) (Continued)

16-Lead Ceramic Flat Package (W)
Order Number 54279FMQB
NS Package Number W16A

LIFE SUPPORT POLICY

NATIONAL'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF NATIONAL SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.



National Semiconductor Corporation
 1111 West Bardin Road
 Arlington, TX 76017
 Tel: 1(800) 272-9959
 Fax: 1(800) 737-7018

National Semiconductor Europe
 Fax: (+49) 0-180-530 85 86
 Email: cnjwge@tevm2.nsc.com
 Deutsch Tel: (+49) 0-180-530 85 85
 English Tel: (+49) 0-180-532 78 32
 Français Tel: (+49) 0-180-532 93 58
 Italiano Tel: (+49) 0-180-534 16 80

National Semiconductor Hong Kong Ltd.
 19th Floor, Straight Block,
 Ocean Centre, 5 Canton Rd.
 Tsimshatsui, Kowloon
 Hong Kong
 Tel: (852) 2737-1600
 Fax: (852) 2736-9960

National Semiconductor Japan Ltd.
 Tel: 81-043-299-2309
 Fax: 81-043-299-2408

National does not assume any responsibility for use of any circuitry described, no circuit patent licenses are implied and National reserves the right at any time without notice to change said circuitry and specifications.